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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,303	12/11/2000	Martin Schadt	08130.0058	7024

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/719,303	SCHADT ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *26-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Request for Reconsideration

Rejections Repeated

1. The 35 U.S.C. 103(a) rejections over Omelis in view of Shannon, and those further in view of other references, have been repeated for the same reasons previously of record in the Office action dated 03/08/05.

Response to Arguments

2. Applicant's arguments filed 09/06/05 have been fully considered but they are not persuasive.

3. Applicant argues that claim 1 is a composition claim, and that the examiner's conclusion of obviousness appears to relate to a method invention, not a composition invention.

Applicant is respectfully apprised that the conclusion of obviousness of "Therefore, because Shannon demonstrates the advantages of using linearly polarized light to orient liquid crystal with the aid of an azo dye, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used linearly polarized light to photo-orient the photo-orientable azo dye monomer of Omelis, to induce an alignment of the liquid crystal monomer of Omelis, in order to provide the desired multi-orientation of the liquid crystal." demonstrates that one of ordinary skill in

the art would have been motivated to photo-orient the azo dye monomer in order to "induce an alignment of the liquid crystal monomer" as recited in claim 1.

4. Applicant argues that to correspond to component (ii) of Applicant, constituent II-C of Omelis would need to be (a) photo orientable, and to concomitantly (b) be capable of inducing an orientation in the component (i) when photo-oriented; and that Shannon fails to teach that constituent II-C satisfies the criteria of component (ii) of Applicant since Shannon does not teach or suggest that any and all azo-dyes could be used in the context of the so-called UV or laser-method discussed in the reference, and that to the contrary, only specific azo dyes can actually be used in Shannon, the dyes exemplified in the Table bridging columns 5-8 of Shannon, being structurally dissimilar from the monomer II-C disclosed by Omelis.

Applicant is respectfully apprised that Omelis teaches that the bridging azo group, -N=N-, enables geometric cis-trans isomerism, which allows the azo dye to alter its geometry under the specified light radiation action (column 6, lines 4-24). Therefore the azo dye monomer II-C of Omelis is (a) photo-orientable and (b) capable of inducing an orientation in the component (i) when photo-oriented, as evidenced by Shannon which teaches that liquid crystals (smectic or nematic mesophases) can be oriented using linearly polarized light (column 6, lines 30-40) with the aid of an azo dye (column 6, lines 55-70), wherein the azo dye is oriented by the linearly polarized light, and in turn orients the liquid crystal in contact with it (column 7, lines 50-60). The azo dyes of Shannon, as exemplified in the Table bridging columns 5-8 of Shannon, have the essential structural fragment in common with the azo dyes of Omelis, specifically the

bridging azo group, -N=N-, which enables geometric cis-trans isomerism, which allows the azo dye to alter its geometry under the specified light radiation action, as taught by Omelis (column 6, lines 4-24). It is noted that Applicant discloses "a particularly photo-orientable substance (ii) comprises molecules showing a cis-trans-isomerism, particularly azo dyes" (specification, page 5, lines 5-6), namely that azo dyes in general satisfy both requirements (a) and (b) of photo-orientable substance (ii). Applicant does not provide any structural or named example of the azo dye in the specification, further implying to the reader of the specification that all azo dyes are included.

5. Applicant argues that a combination of the teachings of Omelis and Shannon would not lead to the claimed invention because Shannon focuses on optical orientation as opposed to mechanical orientation in Omelis, and also because Shannon teaches that the anisotropic material is located in a layer different from the liquid crystal layer so that the polymerizable mesophases is provided as a separate layer, and therefore does not teach that the anisotropic absorbing material is mixed with the polymerizable mesophases.

Applicant is respectfully apprised that Omelis does teach that the bridging azo group, -N=N-, enables geometric cis-trans isomerism, which allows the dye to alter its geometry under the specified light radiation action (column 6, lines 4-24), and that Shannon teaches that linearly polarized light orients the azo dye (anisotropic absorbing material) which in turn orients the liquid crystal in contact with it (column 7, lines 50-60). Therefore Shannon provides the motivation to use linearly polarized light to orient the

azo dye, and hence orient the liquid crystal mixed with and in contact with the oriented azo dye in the mixture of Omelis.

6. Applicant argues that there is no showing in Shannon that a liquid crystal system which is in a mixture with the azo dye can be intrinsically oriented.

Applicant is respectfully reminded that Shannon teaches that linearly polarized light orients the azo dye (anisotropic absorbing material), which in turn orients the liquid crystal in contact with it (column 7, lines 50-60). The term "in contact" implies that orientation occurs at the molecular level, which is indicative that as long as the liquid crystal molecule is in contact with the azo dye molecule, the liquid crystal can be intrinsically oriented in a mixture with the azo dye.

7. In response to Applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

8. Applicant's arguments regarding the rejections of all the other claims refer to Applicant's arguments against the valid combination of Omelis in view of Shannon. These arguments have been addressed above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newly cited US 6,368,760 teaches a mixture of liquid crystal polymer and photo-orientable monomer.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sow-Fun Hon.

Sow-Fun Hon

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

11/28/05